2021-2022

QUALITY CONTROL TEST REPORTS

Client: Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency: Sri. K V Subba Reddy, Contractor, Bangalore.

Name of Work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

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QC ABSTRACT

Nameof Work: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

SI. No.	Item	Quantity As Per BOQ	Required No's of testes	Actual No's of testes	Testes	Frequency
1	1:3:6	75.11 Cum	1	1	Cement Sand, Aggregates	One Test Per Lot
2	M20	141.91 Cum	6	6	Concrete Cube Compressive Strength	-
3	M20	26.12 Cum	3	3	Concrete Cube Compressive Strength	-
4	CC Blocks - 400x150x200	71.00 Sqm	1	1	Concrete Blocks Compressive Strength	-
5	M30	205.15 Cum	8	8	Concrete Core Compressive Strength	-
6	Steel	10.36 Tonne	1	1	-	-
7	DLC	205.15 Cum	1	1	-	-
8	Slab - 100mm	216.72 Sqm	1	1	-	-
9	Slab - 250mm	50.07 Sqm	1	1	-	-
10	GSB-II	200.95Cum	1	1	-	-
11	WMM	354.03 Cum	-	-	-	-
		Gradation	2	2	-	-
		AIV	1	1	-	-
		Shape Test	1	1	-	-
		Atterberg Limits	2	2	-	-
12	DBM	77.01 Cum	-	-	-	-
		Quality of Binder	1	1	-	-
		AIV	1	1	-	-
		Shape Test	1	1	-	-
		Gradation	1	1	-	-
		Specific Gravity	1	1	-	-
		Stability of Mix	1	1	-	-
		Bitumen content	1	1	-	-
13	BC	104.96 Cum	-	-	-	-
		Quality of Binder	1	1	-	-
		AIV	1	1	-	-
		Shape Test	1	1	-	-
		Gradation	1	1	-	-
		Specific Gravity	1	1	-	-
		Stability of Mix	2	2	-	-
		Bitumen content	2	2	-	-

Cubes	0-5 Cum	1Set
	6-15 Cum	2Set
	16-30 Cum	3Set
	31-50 Cum	4Set
	Add 1set for extra 50Cum	

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 24.03.2021

TEST REPORT

CLIENT	:	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	:	**Sri. K V Subba Reddy,** Contractor, Bangalore.
NAME OF THE WORK	:	Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
SAMPLE ID	:	Cement (Zuari OPC 53 Grade)
DATE OF MANUFACTURE	:	February - 2021
DATE OF TESTING	:	22.03.2021 to 24.03.2021
SAMPLES SUPPLIED BY	:	AGENCY

The results of the tests conducted on the cement sample are as follows:

Sl.No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 269-2015
1	a) Initial Setting Time	IS-4031 (Part -5)	140 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5)	330 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part 3) by the Le-Chatelier method	1 mm	Not more than 10 mm
3	Standard Consistency	IS-4031 (Part -4)	29.00 %	-

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⇒ Any Query regarding the report must be reported within 30days from the date of testing.

⇒ The Results of the Materials tested meets the Standards and hence can be used for the work

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22

Date : 24.03.2021

TEST REPORT ON COARSE AGGREGATES

Client : **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Sri. K V Subba Reddy,** Contractor, Bangalore.

Name of Work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

Date of Testing : 24.03.2021

IS Code : IS 383:2016

: IS 2386 (Part 1):1963(RA 2011)

Material : 40mm Aggregates

Total Wt. of Aggregates in gms **15000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits
80	0	0	0	100	100
40	185	1.23	1.23	98.77	95-100
20	8232	54.88	56.11	43.89	30-70
10	3265	21.77	77.88	22.12	10-35
4.75	2830	18.87	96.75	3.25	0-5

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4. The Results of the Materials tested meets the Standards and hence can be used for the work

Suresh.N.K
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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 24.03.2021

TEST REPORT ON FINE AGGREGATES (SAND)
IS 2116-1980

Client : **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Sri. K V Subba Reddy,** Contractor, Bangalore.

Name of Work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

Date of Testing : 24.03.2021

Material : Sand - Masonry Total wt. of aggregates in gms = **1000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits as per IS 2116-1980
4.75	0	0.00	0.00	100.0	100
2.36	13	1.30	1.30	98.7	90-100
1.18	38	3.80	5.10	94.9	70-100
600 Micron	84	8.40	13.50	86.5	40-100
300 Micron	256	25.60	39.10	60.9	5-70
150 Micron	484	48.40	87.50	12.5	0-15

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4. The Results of the Materials tested meets the Standards and hence can be used for the work

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 25.03.2021

TEST REPORT OF PHYSICAL PROPERTIES OF REINFORCEMENT STEEL

Client : **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency : **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of Work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

Steel Dia/Length : ,10mm,12mm " Fe500 TMT Bars"
Reference to BIS codes : IS 1786:2008(RA 2013) High Strength Deformed Steel Bars and Wires for Concrete Reinforcement-Specification
: IS 1608:2005 Metallic Materials- Tensile Testing at Ambient Temperature
Date of test : 25.03.2021

S.No	Brand	Nominal size (dia in mm)	Mass per meter (kg/meter)	TENSILE STRENGTH			
				0.20 % proof stress/ yield stress (N/mm^2)	Tensile strength (N/mm^2)	TS/YS ratio	Elongation, percent on gauge length
1	TMT	8	0.395	546	632	1.16	15
2	TMT	10	0.618	559	656	1.17	16
3	TMT	12	0.889	568	668	1.18	17

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4. The Results of the Materials tested meets the Standards and hence can be used for the work

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 26.03.2021

TEST REPORT ON CEMENT CONCRETE BLOCKS

Client : **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Sri. K V Subba Reddy,** Contractor, Bangalore.

Name of the Work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

Date of Testing : 26.03.2021

Size of Blocks : 400mm x 150mm x 200mm

Cross Sectional Area : 60000 mm^2

Technical Reference : IS: 2185 (Part 1) - 2005

No. of Blocks Tested : 04

Sl.No.	Block ID	Wt. in Kg	Failure load (N)	Compressive strength (N/mm^2)	Block Density in Kg/M^3	Requirement as per IS 2185 (Part 1) - 2005
1	Block 1	24.6	262.5	4.38	2050.00	Minimum required Compressive Strength of Individual Units 4.00N/mm^2
2	Block 2	23.8	268.2	4.47	1983.33	
3	Block 3	25.2	265.5	4.43	2100.00	
4	Block 4	24.9	264.8	4.41	2075.00	

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4. The Results of the Materials tested meets the Standards and hence can be used for the work

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 09.04.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Raft (Drain)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	02.04.2021	09.04.2021	8.165	329.3	14.64
2	02.04.2021	09.04.2021	8.152	335.2	14.90
3	02.04.2021	09.04.2021	8.146	346.5	15.40

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 30.04.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Raft (Drain)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	02.04.2021	30.04.2021	8.188	515.2	22.90
2	02.04.2021	30.04.2021	8.164	508.3	22.59
3	02.04.2021	30.04.2021	8.146	489.6	21.76

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 12.04.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Wall (Drain)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	05.04.2021	12.04.2021	8.168	345.2	15.34
2	05.04.2021	12.04.2021	8.152	339.3	15.08
3	05.04.2021	12.04.2021	8.146	326.8	14.52

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 03.05.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Wall (Drain)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	05.04.2021	03.05.2021	8.189	489.6	21.76
2	05.04.2021	03.05.2021	8.154	505.2	22.45
3	05.04.2021	03.05.2021	8.146	516.3	22.95

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 12.04.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
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Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	05.04.2021	12.04.2021	8.184	336.3	14.95
2	05.04.2021	12.04.2021	8.156	345.2	15.34
3	05.04.2021	12.04.2021	8.138	356.2	15.83

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 03.05.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Wall (Drain)
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Grade of Concrete	: M_{20}
Compressive Strength as on	: 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	05.04.2021	03.05.2021	8.188	515.2	22.90
2	05.04.2021	03.05.2021	8.156	506.2	22.50
3	05.04.2021	03.05.2021	8.138	489.6	21.76

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 14.04.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
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Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	07.04.2021	14.04.2021	8.169	335.2	14.90
2	07.04.2021	14.04.2021	8.154	346.5	15.40
3	07.04.2021	14.04.2021	8.176	352.8	15.68

Note:

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

AEW10

ASSISTANT EXECUTIVE ENGINEER
Vidyaranyapura Sub-Division
Bengaluru Mahanagara Palike

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CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 05.05.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Raft (Drain)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	07.04.2021	05.05.2021	8.185	505.2	22.45
2	07.04.2021	05.05.2021	8.150	516.3	22.95
3	07.04.2021	05.05.2021	8.162	485.2	21.56

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 16.04.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Wall (Drain)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	09.04.2021	16.04.2021	8.169	336.3	14.95
2	09.04.2021	16.04.2021	8.184	345.2	15.34
3	09.04.2021	16.04.2021	8.152	356.8	15.86

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 07.05.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer**, Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Wall (Drain)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	09.04.2021	07.05.2021	8.184	505.2	22.45
2	09.04.2021	07.05.2021	8.159	513.3	22.81
3	09.04.2021	07.05.2021	8.162	489.6	21.76

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Sunitha. NK
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For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 16.04.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer**, Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy**, Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Wall (Drain)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	09.04.2021	16.04.2021	8.174	336.3	14.95
2	09.04.2021	16.04.2021	8.156	346.5	15.40
3	09.04.2021	16.04.2021	8.138	352.8	15.68

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Sunitha. NR
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For CIVIL AIM CONSULTANTS & ENGINEERS

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TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Wall (Drain)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	09.04.2021	07.05.2021	8.168	505.2	22.45
2	09.04.2021	07.05.2021	8.184	515.6	22.92
3	09.04.2021	07.05.2021	8.146	488.9	21.73

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Sunitha. N K
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TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Raft (Culvert)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	09.04.2021	16.04.2021	8.188	338.5	15.04
2	09.04.2021	16.04.2021	8.165	346.5	15.40
3	09.04.2021	16.04.2021	8.145	356.2	15.83

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TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Raft (Culvert)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	09.04.2021	07.05.2021	8.189	505.2	22.45
2	09.04.2021	07.05.2021	8.156	516.2	22.94
3	09.04.2021	07.05.2021	8.135	488.9	21.73

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 19.04.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Wall (Culvert)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.04.2021	19.04.2021	8.156	336.3	14.95
2	12.04.2021	19.04.2021	8.138	342.5	15.22
3	12.04.2021	19.04.2021	8.155	356.3	15.84

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Sweetha N L
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For CIVIL AIM CONSULTANTS & ENGINEERS

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ASSISTANT EXECUTIVE ENGINEER
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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 10.05.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Wall (Culvert)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.04.2021	10.05.2021	8.184	505.2	22.45
2	12.04.2021	10.05.2021	8.165	516.2	22.94
3	12.04.2021	10.05.2021	8.128	511.2	22.72

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 19.04.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Wall (Culvert)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.04.2021	19.04.2021	8.156	336.3	14.95
2	12.04.2021	19.04.2021	8.168	345.2	15.34
3	12.04.2021	19.04.2021	8.149	356.2	15.83

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 10.05.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete for Wall (Culvert)
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{20}
Compressive Strength as on	: 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.04.2021	10.05.2021	8.169	505.2	22.45
2	12.04.2021	10.05.2021	8.184	516.2	22.94
3	12.04.2021	10.05.2021	8.152	484.6	21.54

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 **Date** : 06.05.2021

GRADATION FOR DRY LEAN CONCRETE
MORTH TABLE-600-1

Client : **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Sri. K V Subba Reddy,** Contractor, Bangalore.

Name of Work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

Date of Testing : 06.05.2021

Material : Dry Lean Concrete

Oven Dry Wt (gm): **10000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
26.5	0	0	0	100	100
19	1045	1045	10.5	89.6	80-100
9.5	2530	3575	35.8	64.3	55-75
4.75	1569	5144	51.4	48.6	35-60
0.600	3325	8469	84.7	15.3	10-35
0.075	950	9419	94.2	5.8	0-8

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 19.05.2021

TEST REPORT ON CONCRETE CUBES

Client	: **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP,
Contractor	: **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Sample ID	: Cement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
Grade of Concrete	: M_{30}
Compressive Strength as on	: 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.05.2021	19.05.2021	8.168	505.2	22.45
2	12.05.2021	19.05.2021	8.146	526.3	23.39
3	12.05.2021	19.05.2021	8.138	535.8	23.81

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

ASSISTANT EXECUTIVE ENGINEER
Vidyaranyapura Sub-Division
Bruhath Bengaluru Mahanagara Palike

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CIVIL AIM CONSULTANTS & ENGINEERS

(Building Geo-Tech & Highway Materials Testing Laboratory)

An ISO 9001-2015 Certified Company

NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/KVSR/W.No.10/2021-22

Date: 09.06.2021

TEST REPORT ON CONCRETE CUBES

Client : **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP,

Contractor : **Sri. K V Subba Reddy,** Contractor, Bangalore.

Name of the work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

Sample ID : Cement Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

Grade of Concrete : M_{30}

Compressive Strength as on : 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.05.2021	09.06.2021	8.169	725.3	32.24
2	12.05.2021	09.06.2021	8.205	738.6	32.83
3	12.05.2021	09.06.2021	8.184	715.3	31.79

Note:

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

Sunitha. N L
AE W10

ASSISTANT EXECUTIVE ENGINEER
Vidyaranyapura Sub-Division
Bruhath Bengaluru Mahanagara Palike

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22

Date: 19.05.2021

TEST REPORT ON CONCRETE CUBES

Client : **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP,

Contractor : **Sri. K V Subba Reddy,** Contractor, Bangalore.

Name of the work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

Sample ID : Cement Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

Grade of Concrete : M_{30}

Compressive Strength as on : 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.05.2021	19.05.2021	8.163	512.3	22.77
2	12.05.2021	19.05.2021	8.154	536.2	23.83
3	12.05.2021	19.05.2021	8.134	500.3	22.24

Note:

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

Suresh. N L
AE W/O

ASSISTANT EXECUTIVE ENGINEER
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TEST REPORT ON CONCRETE CUBES

Client : **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP,

Contractor : **Sri. K V Subba Reddy,** Contractor, Bangalore.

Name of the work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

Sample ID : Cement Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

Grade of Concrete : M_{30}

Compressive Strength as on : 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.05.2021	09.06.2021	8.188	736.2	32.72
2	12.05.2021	09.06.2021	8.195	721.5	32.07
3	12.05.2021	09.06.2021	8.156	718.9	31.95

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Sweetha .N L
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Name of the work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

Sample ID : Cement Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

Grade of Concrete : M_{30}

Compressive Strength as on : 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.05.2021	19.05.2021	8.136	515.2	22.90
2	12.05.2021	19.05.2021	8.154	526.3	23.39
3	12.05.2021	19.05.2021	8.124	538.2	23.92

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Seetha. N R
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Sample ID : Cement Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

Grade of Concrete : M_{30}

Compressive Strength as on : 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.05.2021	09.06.2021	8.188	728.6	32.38
2	12.05.2021	09.06.2021	8.195	735.9	32.71
3	12.05.2021	09.06.2021	8.215	716.2	31.83

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Contractor : **Sri. K V Subba Reddy,** Contractor, Bangalore.

Name of the work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

Sample ID : Cement Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

Grade of Concrete : M_{30}

Compressive Strength as on : 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.05.2021	19.05.2021	8.156	500.9	22.26
2	12.05.2021	19.05.2021	8.135	515.8	22.92
3	12.05.2021	19.05.2021	8.146	526.1	23.38

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Grade of Concrete : M_{30}

Compressive Strength as on : 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	12.05.2021	09.06.2021	8.154	721.3	32.06
2	12.05.2021	09.06.2021	8.139	739.6	32.87
3	12.05.2021	09.06.2021	8.164	751.2	33.39

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Technical Reference : IS: 516-1959 (Reaffirmed 2008)

Grade of Concrete : M_{30}

Compressive Strength as on : 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	13.05.2021	20.05.2021	8.184	498.6	22.16
2	13.05.2021	20.05.2021	8.169	505.2	22.45
3	13.05.2021	20.05.2021	8.152	519.4	23.08

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Grade of Concrete : M_{30}

Compressive Strength as on : 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	13.05.2021	20.05.2021	8.188	512.3	22.77
2	13.05.2021	20.05.2021	8.169	535.6	23.80
3	13.05.2021	20.05.2021	8.154	500.8	22.26

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

Suresh N R
AE W10

ASSISTANT EXECUTIVE ENGINEER
Vidyaranyapura Sub-Division
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Sample ID : Cement Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

Grade of Concrete : M_{30}

Compressive Strength as on : 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	13.05.2021	10.06.2021	8.198	718.2	31.92
2	13.05.2021	10.06.2021	8.201	739.6	32.87
3	13.05.2021	10.06.2021	8.165	752.4	33.44

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Smitha. N K
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Technical Reference : IS: 516-1959 (Reaffirmed 2008)

Grade of Concrete : M_{30}

Compressive Strength as on : 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	13.05.2021	10.06.2021	8.195	732.6	32.56
2	13.05.2021	10.06.2021	8.165	718.5	31.93
3	13.05.2021	10.06.2021	8.146	729.4	32.42

Note:

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Suvetha. N.L
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Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

Grade of Concrete : M_{30}

Compressive Strength as on : 7th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	13.05.2021	20.05.2021	8.184	506.5	22.51
2	13.05.2021	20.05.2021	8.166	519.3	23.08
3	13.05.2021	20.05.2021	8.152	526.4	23.40

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Contractor : **Sri. K V Subba Reddy,** Contractor, Bangalore.

Name of the work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

Sample ID : Cement Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

Grade of Concrete : M_{30}

Compressive Strength as on : 28th day

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	13.05.2021	10.06.2021	8.184	716.3	31.84
2	13.05.2021	10.06.2021	8.154	738.9	32.84
3	13.05.2021	10.06.2021	8.146	721.2	32.05

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For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

Geetha. N L
AE W 10

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Bruhath Bengaluru Mahanagara Palike

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 26.04.2021

PRECAST SLAB 100mm Thick(CORE) TEST REPORT

Client	:	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	:	**Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of Work	:	Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
No.of Sample Tested	:	03
Date of Testing	:	26.04.2021
Techinical Reference	:	IS:516-1959 (Reaffirmed 1999), SP-24:1983.
Grade of Concrete	:	M_{20}

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	82.00	0.375	2329.10	1.64	0.961	32.30	16.45	17.77	17.08	21.34
2	50.00	84.00	0.389	2358.52	1.68	0.965	32.90	16.76	18.10	17.47	21.84
3	50.00	86.00	0.405	2398.43	1.72	0.970	33.50	17.06	18.43	17.87	22.34

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4. The Results of the Materials tested meets the Standards and hence can be used for the work

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

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ASSISTANT EXECUTIVE ENGINEER
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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 26.04.2021

PRECAST SLAB 250mm Thick(CORE) TEST REPORT

Client	:	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Contractor	:	**Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of Work	:	Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
No.of Sample Tested	:	03
Date of Testing	:	26.04.2021
Techinical Reference	:	IS:516-1959 (Reaffirmed 1999), SP-24:1983.
Grade of Concrete	:	M_{20}

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	90.00	115.00	1.715	2344.18	1.28	0.922	112.20	17.64	19.05	17.56	21.95
2	90.00	117.00	1.769	2376.66	1.30	0.924	113.60	17.86	19.29	17.83	22.28
3	90.00	119.00	1.815	2397.48	1.32	0.927	115.20	18.11	19.56	18.13	22.66

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For CIVIL AIM CONSULTANTS & ENGINEERS

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JobNo: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 10.11.2021

GRADATION FOR GSB (Grading II)

Client : **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency : **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

BIS Code: IS 2386 Part (1):1963
IS 2720 part (5):1985

Date of Testing : 08.11.2021 to 10.11.2021

Oven Dry Wt (gm) : 13000

TABLE – 1

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirements as per MORTH 5th edition table 400.1
53	0	0	0.00	100	100
26.5	1852	1852	14.25	85.75	70-100
9.5	2065	3917	30.13	69.87	50-80
4.75	2148	6065	46.65	53.35	40-65
2.36	1785	7850	60.38	39.62	30-50
0.425	2598	10448	80.37	19.63	10-15
0.075	1895	12343	94.95	5.05	<5

TABLE – 2

Sl. No.	Particulars	Test Results	Requirements as per MORTH 5th edition table 400.2
1	Liquid Limit, %	21.80	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

Remarks: Satisfies MORTH Specifications as per Table 400-1, Grading V

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EXECUTIVE ENGINEER
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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 15.11.2021

GRADATION FOR WMM

Client : **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Sri. K V Subba Reddy,** Contractor, Bangalore.

Name of Work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing : 15.11.2021

Material Type : Wet Mix Macadam

Oven Dry.Wt, grar 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	189	189	1.9	98.1	95-100
22.4	2530	2719	27.2	72.8	60-80
11.2	2156	4875	48.8	51.3	40-60
4.75	1850	6725	67.3	32.8	25-40
2.36	1125	7850	78.5	21.5	15-30
0.600	589	8439	84.4	15.6	8-22
0.075	1145	9584	95.8	4.2	0-5

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 15.11.2021

GRADATION FOR WMM

Client : **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Sri. K V Subba Reddy,** Contractor, Bangalore.

Name of Work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

IS Code: : IS 2386 (Part 1):1963(RA 2011)

Date of Testing : 15.11.2021

Material Type : Wet Mix Macadam

Oven Dry.Wt, grar 10000

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Requirement as per MORTH 5th edition table no 400.13
53	0	0	0	100	100
45	184	184	1.8	98.2	95-100
22.4	2536	2720	27.2	72.8	60-80
11.2	2160	4880	48.8	51.2	40-60
4.75	1859	6739	67.4	32.6	25-40
2.36	1165	7904	79.0	21.0	15-30
0.600	585	8489	84.9	15.1	8-22
0.075	1152	9641	96.4	3.6	0-5

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 15.11.2021

Aggregate Impact Value

Client	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the Work	Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
IS Code	IS 2386 (Part 4):1963(RA 2011)
Type of Mix	Wet Mix macadam
Date of Testing	15.11.2021

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	381	383	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85	86.5	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	296	296.5	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.31	22.58	22.45

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%(As per MORTH Specication table 400.12)

Note:

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 17.11.2021

ATTERBERG LIMITS TEST FOR WMM

Client : **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency : **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of Work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
IS Code: : IS 2720(Part 5):1985
Date of Testing : 15.11.2021 to 17.11.2021
Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	19.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 17.11.2021

ATTERBERG LIMITS TEST FOR WMM

Client : **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency : **Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of Work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
IS Code: : IS 2720(Part 5):1985
Date of Testing : 15.11.2021 to 17.11.2021
Material Type : Wet Mix Macadam

Sl. No.	Particulars	Test Results	Requirement as per MORTH 5th edition Cl.406.2.1.2
1	Liquid Limit	20.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 15.11.2021

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of Work	Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
BIS code:	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	15.11.2021

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 400.12
1	Flakiness Index %	11.90	12.30	Combined Flakiness & Elongation index Max 35%
2	Elongation Index %	13.60	13.90	
	Combined Flakiness & Elongation index	25.50	26.20	

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JobNo: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 29.11.2021

TEST RESULTS OF AGGREGATE IMPACT VALUE

Client : **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Sri. K V Subba Reddy,** Contractor, Bangalore.

Name of work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

Source / Location : Hot Mix Plant, Bangalore

BIS Code : IS 2386 Part (4):1963

Type of Mix : Dense Graded Bituminous Macadam

Date of test : 29.11.2021

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W1 g	395	388	
2	Weight of agregate passing 2.36 mm sieve after the test = W2 g	89	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W3 g	306	301	
5	Aggregate Impact value = percent fines 100* (W2/W1) percent	22.53	22.42	**22.48**

Comments:

→ Maximum allowable Aggregate Impact value for Dense Graded Bituminous Macadam is 27% (Table 500-8 of MORTH specification)

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For CIVIL AIM CONSULTANTS & ENGINEERS

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JobNo: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 29.11.2021

TEST RESULTS OF AGGREGATE SHAPE TEST
(Flakiness & Elongation)

Client : **Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Sri. K V Subba Reddy,** Contractor, Bangalore.

Name of work : Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.

BIS Code : IS 2386 Part (1):1963

Date of Test : 29.11.2021

Type of Mix : Dense Graded Bituminous Macadam

Sl.No.	Flakiness Index Value(%)	Elongation Index Value(%)	Total(Combined Flakiness and Elongation)(%)	Requirements
1	12.10	14.10	26.20	Maximum allowable Combined Flakiness and Elongation Indices for Dense Graded Bituminous Macadam is 35% as per Table 500.8 MORTH Specification.
2	12.65	14.30	26.95	

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 29.11.2021

Aggregate Gradation Test

IS : 2386 Part I

Client	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the Work	Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
BIS Code	IS 2386(Part 1):1963
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	29.11.2021

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.5	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
26.5	418	8.36	8.36	91.64	90-100	
19	498	9.96	18.32	81.68	71-95	
13.2	623	12.46	30.78	69.22	56-80	
4.75	852	17.04	47.82	52.18	38-54	
2.36	612	12.24	60.06	39.94	28-42	
0.300	961	19.22	79.28	20.72	7-21	
0.075	658	13.16	92.44	7.56	2-8	

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.10	Remarks
37.5	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
26.5	457	9.14	9.14	90.86	90-100	
19	425	8.50	17.64	82.36	71-95	
13.2	651	13.02	30.66	69.34	56-80	
4.75	865	17.30	47.96	52.04	38-54	
2.36	625	12.50	60.46	39.54	28-42	
0.300	983	19.66	80.12	19.88	7-21	
0.075	625	12.50	92.62	7.38	2-8	

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Job No: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 29.11.2021

TEST REPORT ON PAVING BITUMEN

Client	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of work	Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
BIS Code	IS 73:2013,IS 1203:1978, IS 1208:1978, IS 1205:1978, IS1448(P-69):1969
Date of Testing	**29.11.2021**
Type of Mix	**Dense Graded Bituminous Macadam , VG 30**
Source of Location	**Hot Mix Plant**

The results of the tests conducted on the bitumen sample using for Dense Graded Bituminous Macadam

Sl.No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 0C, 100gms, 5sec, 1/10 mm	62	Min 45
2	Softening point, 0C	49	Min 47
3	Ductility at 250C, cm	95	Min40
4	Flash Point, 0C	228	Min 220

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 31.12.2021

Specific Gravity And Water Absorption Test

Client	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the Work	Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
BIS Code	IS 2386(Part 3):1963
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	30.11.2021

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2022	2015	2032	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1267	1260	1277	
4	Weight of saturated surface dry aggregate in air	W_3 g	2018	2011	2025	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	751	751	748	
6	Weight of oven dried aggregate	W_4 g	2014	2008	2019	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.682	2.674	2.699	2.685
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.696	2.684	2.721	2.701
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.20%	0.15%	0.30%	0.22%

Comments:

→ Maximum allowable Aggregate Water absorption value for Dense Graded Bituminous Macadam is 2.0%(MORTH table 500.16)

Suvitha. N K
AE W10

Note:

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⇒ The results indicated above are based on the tests carried out on the samples collected & submitted

⇒ Any Query regarding the report must be reported within 30 days from the date of testing

⇒ The result of materials tested meets the standards and hence can be used for work

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

No.01, Satvika Nilaya, Opp. Widia Poorna Prajna School,
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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 29.11.2021

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	:	**Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the Work	:	Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore..
Type of Mix	:	Dense Graded Bituminous Macadam
Date of Testing	:	29.11.2021

The results of the tests conducted on the Dense Graded Bituminous Macadam mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.75	9.65	9 Kn (min)
2	Marshal flow, mm	3.33	3.29	2 – 4
3	Percent air voids in Mineral Aggregate	14.54	13.69	13 – 15
4	Voids in Compacted Mix	3.84	4.52	3 – 6
5	Percent Voids filled with Bitumen	67.90	69.45	65 - 75
6	Density, g/cc	2.26	2.28	--

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 30.11.2021

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE BITUMINOUS MACADAM

AASHTO T 164 & AASHTO T 30

CLIENT	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**: Sri. K V Subba Reddy,** Contractor, Bangalore.
NAME OF THE WORK	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	30.11.2021

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469	469.5
3. Weight of Asphalt and Mineral matter Extracted, g	31	30.5
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	22.36	22.2
7. Bitumen content in %	4.47	4.44
8. Average	**4.46**	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.17
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	14.2	14.2	3.0	97.0	90-100
19	69.4	83.6	17.8	82.2	71-95
13.2	95.6	179.2	38.2	61.8	56-80
4.75	48.2	227.4	48.5	51.5	38-54
2.36	52.2	279.6	59.6	40.4	28-42
0.300	99.6	379.2	80.9	19.1	7-21
0.075	58.3	437.5	93.3	6.7	2-8

For CIVIL AIM CONSULTANTS & ENGINEERS

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SIEVE SIZE mm	Test 2				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
37.5	0	0	0	100	100
26.5	15.6	15.6	3.3	96.7	90-100
19	85.3	100.9	21.5	78.5	71-95
13.2	98.2	199.1	42.4	57.6	56-80
4.75	55.2	254.3	54.2	45.8	38-54
2.36	69.8	324.1	69.0	31.0	28-42
0.300	74.6	398.7	84.9	15.1	7-21
0.075	59.6	458.3	97.6	2.4	2-8

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 30.11.2021

Aggregate Impact Value

Client	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**: Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the Work	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
BIS Code	IS 2386(Part 4):1963
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	30.11.2021

Sl No.	Details	Test No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	384	388	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299	300	
4	Aggregate Impact value = percent fines 100* (W_2/W_1) percent	22.14	22.68	**22.41**

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%(MORTH table no.500.16)

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 30.11.2021

TEST REPORT

Client	:	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	:	**Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the work	:	Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
IS Code	:	IS 73:2013, IS 1203:1978(RA 2008), IS 1205:1978(RA 2009), IS 1208:1978(RA 2009), IS 1209:1978(RA 2009)
Source of location	:	Hot mix Plant, Bangalore, VG 30
Date of testing	:	30.11.2021

The results of the tests conducted on the bitumen sample using for Bituminous Concrete

Sl. No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	50	Min 45
2	Softening point, ^{0}C	48	Min. 47
3	Ductility at 27^{0}C, cm	> 100	Min. 40
4	Flash Point, ^{0}C	258	Min. 220

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 01.12.2021

Aggregate Gradation Test

IS : 2386 Part I

Client	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the Work	Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
BIS Code	IS 2386(Part 1):1963
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	01.12.2021

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	415	8.30	8.30	91.70	90 - 100	
9.5	486	9.72	18.02	81.98	70 - 88	
4.75	652	13.04	31.06	68.94	53 - 71	
2.36	699	13.98	45.04	54.96	42 - 58	
1.18	542	10.84	55.88	44.12	34 - 48	
0.600	548	10.96	66.84	33.16	26 - 38	
0.300	491	9.82	76.66	23.34	18 - 28	
0.150	356	7.12	83.78	16.22	12 - 20	
0.075	488	9.76	93.54	6.46	4 - 10	

Total Weight of Sample: **5000** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Requirement as per MORTH table 500.17	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	423	8.46	8.46	91.54	90 - 100	
9.5	548	10.96	19.42	80.58	70 - 88	
4.75	684	13.68	33.10	66.90	53 - 71	
2.36	537	10.74	43.84	56.16	42 - 58	
1.18	541	10.82	54.66	45.34	34 - 48	
0.600	569	11.38	66.04	33.96	26 - 38	
0.300	669	13.38	79.42	20.58	18 - 28	
0.150	187	3.74	83.16	16.84	12 - 20	
0.075	482	9.64	92.80	7.20	4 - 10	

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 30.11.2021

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of Work	Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Bituminous Concrete
Date of Testing	30.11.2021

Sl no	Test	1	2	Requirements as per MORTH 5th edition table no 500.16
1	Flakiness Index	13.5	14.5	Combined Flakiness & Elongation index Max 35%
2	Elongation Index	13.2	13.4	
	Combined Flakiness & Elongation index	26.70	27.90	

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For CIVIL AIM CONSULTANTS & ENGINEERS

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 31.12.2021

Specific Gravity And Water Absorption Test

Client	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the Work	Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
BIS Code	IS 2386(Part 3):1963
Type of Mix	Bituminous Concrete
Date of Testing	30.11.2021 to 01.12.2021

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2025	2021	2024	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1270	1266	1269	
4	Weight of saturated surface dry aggregate in air	W_3 g	2018	2022	2021	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	748	756	752	
6	Weight of oven dried aggregate	W_4 g	2011	2014	2012	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.689	2.664	2.676	2.676
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.714	2.693	2.708	2.705
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.35%	0.40%	0.45%	0.40%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%(MORTH table 500.16)

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 30.11.2021

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	:	**Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the Work	:	Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	30.11.2021

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.65	9.78	9 Kn (min)
2	Marshal flow, mm	2.68	3.12	2 – 4
3	Percent air voids in Mineral Aggregate	13.51	14.96	13 – 15
4	Voids in Compacted Mix	3.42	4.50	3 – 6
5	Percent Voids filled with Bitumen	68.97	69.12	65 - 75
6	Density, g/cc	2.21	2.22	--

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date: 01.12.2021

TEST REPORT ON STABILITY OF MIX

Client	:	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	:	**Sri. K V Subba Reddy,** Contractor, Bangalore.
Name of the Work	:	Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	01.12.2021

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.64	9.65	9 Kn (min)
2	Marshal flow, mm	2.41	3.56	2 – 4
3	Percent air voids in Mineral Aggregate	13.88	14.74	13 – 15
4	Voids in Compacted Mix	3.52	4.89	3 – 6
5	Percent Voids filled with Bitumen	68.41	69.65	65 - 75
6	Density, g/cc	2.22	2.28	--

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Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 30.11.2021

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**: Sri. K V Subba Reddy,** Contractor, Bangalore.
NAME OF THE WORK	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	30.11.2021

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469.5	469
3. Weight of Asphalt and Mineral matter Extracted, g	30.5	31
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	26.98	26.87
7. Bitumen content in %	5.40	5.37
8. Average	**5.39**	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.17
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	14.5	14.5	3.1	96.9	90 - 100
9.5	66.4	80.9	17.2	82.8	70 - 88
4.75	91.5	172.4	36.7	63.3	53 - 71
2.36	44.6	217	46.2	53.8	42 - 58
1.18	37.9	254.9	54.3	45.7	34 - 48
0.600	50.3	305.2	65.0	35.0	26 - 38
0.300	41.5	346.7	73.8	26.2	18 - 28
0.150	36.5	383.2	81.6	18.4	12 - 20
0.075	42.5	425.7	90.7	9.3	4 - 10

For CIVIL AIM CONSULTANTS & ENGINEERS

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SIEVE SIZE	Test 2				Requirement as per MORTH table 500.17
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	13.4	13.4	2.9	97.1	90 - 100
9.5	64.5	77.9	16.6	83.4	70 - 88
4.75	91.5	169.4	36.1	63.9	53 - 71
2.36	44.1	213.5	45.5	54.5	42 - 58
1.18	42.5	256	54.6	45.4	34 - 48
0.600	55.3	311.3	66.4	33.6	26 - 38
0.300	41.6	352.9	75.2	24.8	18 - 28
0.150	36.7	389.6	83.1	16.9	12 - 20
0.075	40.5	430.1	91.7	8.3	4 - 10

Note:

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Þ The results indicated above are based on the tests carried out on the samples collected at the site.

Þ Any Query regarding the report must be reported within 30 days from the date of testing

Þ The result of materials tested meets the standards and hence can be used for work

For CIVIL AIM CONSULTANTS & ENGINEERS

Authorised Signatory

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(Building Geo-Tech & Highway Materials Testing Laboratory)

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NABL Accredited As Per ISO/IEC 17025:2017 Laboratory

Job No.: CACE/BBMP/KVSR/W.No.10/2021-22 Date : 01.12.2021

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	**Assistant Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**: Sri. K V Subba Reddy,** Contractor, Bangalore.
NAME OF THE WORK	: Improvements to Roads and Drains surrounding in Ward No.10, BBMP, Bangalore.
SAMPLE ID	Hot Mix Plant, Bangalore
DATE OF TESTING	01.12.2021

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469	469.5
3. Weight of Asphalt and Mineral matter Extracted, g	31	30.5
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	26.88	25.89
7. Bitumen content in %	5.38	5.18
8. Average	**5.28**	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Test 1				Requirement as per MORTH table 500.17
mm	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	15.5	15.5	3.3	96.7	90 - 100
9.5	64.9	80.4	17.1	82.9	70 - 88
4.75	98.6	179	38.2	61.8	53 - 71
2.36	49.1	228.1	48.6	51.4	42 - 58
1.18	35.6	263.7	56.2	43.8	34 - 48
0.600	52.8	316.5	67.5	32.5	26 - 38
0.300	40.1	356.6	76.0	24.0	18 - 28
0.150	35.2	391.8	83.5	16.5	12 - 20
0.075	41.2	433	92.3	7.7	4 - 10

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SIEVE SIZE mm	Test 2				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cummulative Weight Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	14.1	14.1	3.0	97.0	90 - 100
9.5	65.4	79.5	16.9	83.1	70 - 88
4.75	89.2	168.7	35.9	64.1	53 - 71
2.36	45.6	214.3	45.6	54.4	42 - 58
1.18	40.1	254.4	54.2	45.8	34 - 48
0.600	54.6	309	65.8	34.2	26 - 38
0.300	40.5	349.5	74.4	25.6	18 - 28
0.150	39	388.5	82.7	17.3	12 - 20
0.075	45.2	433.7	92.4	7.6	4 - 10

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